



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,669	04/19/2007	Stephan Maucher	66967-0042	5923
84362	7590	05/07/2009		
GKN Driveline/ITG c/o Kristin L. Murphy 39533 Woodward Avenue, suite 140 Bloomfield Hills, MI 48304			EXAMINER BINDA, GREGORY JOHN	
			ART UNIT 3679	PAPER NUMBER
			MAIL DATE 05/07/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/562,669

**Applicant(s)**

MAUCHER ET AL.

**Examiner**

Greg Binda

**Art Unit**

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 21-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 21-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_

*Drawings*

1. The drawings are objected to because they fail to show the limitations of claims 42-45, 52 & 53. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

2. The title of the invention is objected to for including the word “optimized,” which is a synonym of “improved”. See MPEP § 606.

*Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 & 21-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1, line 16 and claim 21, line 16 recite the limitation "the central joint plane (E)". There is insufficient antecedent basis for this limitation in the claims.

b. Claim 1, line 22 and claim 21, line 21 recite the limitation "the shaft toothing". There is insufficient antecedent basis for this limitation in the claims.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 21-29, 34, 35, 38, 39, 46 & 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aucktor, US 3,475,924. Fig. 1 shows a constant velocity joint J in the form of a counter track joint comprising:

an outer joint part 3 having a first longitudinal axis 9 and comprising first outer ball tracks 2 and second outer ball tracks 2a;

an inner joint part 15 with a toothed inner bore, the inner part having a second longitudinal axis 9 and comprising first inner ball tracks 4 and second inner ball tracks 4a;

the first outer ball tracks and the first inner ball tracks form first pairs of tracks;  
the second outer ball tracks and the second inner ball tracks form second pairs of tracks;  
the pairs of tracks each accommodate a torque transmitting ball 1;  
a ball cage 5 is positioned between the outer joint part and the inner joint part and  
comprises circumferentially distributed cage windows 5b which each receive one of the balls;  
when the joint is in the aligned condition, the first pairs of tracks open in the central joint  
plane 8 in the right direction, and  
when the joint is in the aligned condition, the second pairs of tracks open in the central  
joint plane in the left direction.

Fig. 7 shows a driveshaft comprising two constant velocity joints J, J' and an intermediate  
shaft I.

Aucktor does not expressly disclose ratios V1, V2, V3 & V4 and maximum angle of  
articulation having values within the ranges recited in the instant claims. However, it would  
have been obvious to one having ordinary skill in the art at the time the invention was made to  
have the values of these ratios and maximum angle of articulation substantially within the ranges  
recited in the instant claims, since it has been held that where the general conditions of a claim  
are disclosed in the prior art, discovering the optimum or workable ranges involves only routine  
skill in the art. *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056.

7. Claims 1, 21-29 & 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Krude et al, US 2001/0006910 ((Krude)). Fig. 1 shows a constant velocity joint 11 in the form of  
a counter track joint comprising:

an outer joint part 12 with a joint base 13 and journal, the outer joint part having a first longitudinal axis 18 and comprising first outer ball tracks 21 and second outer ball tracks 22;  
an inner joint part 15 with a toothed inner bore, the inner part having a second longitudinal axis 19 and comprising first inner ball tracks 23 and second inner ball tracks 24;  
the first outer ball tracks and the first inner ball tracks form first pairs of tracks;  
the second outer ball tracks and the second inner ball tracks form second pairs of tracks;  
the pairs of tracks each accommodate a torque transmitting ball 17;  
a ball cage 16 is positioned between the outer joint part and the inner joint part and comprises circumferentially distributed cage windows which each receive at least one of the balls;

when the joint is in the aligned condition, the first pairs of tracks open in the central joint plane in the right direction, and

when the joint is in the aligned condition, the second pairs of tracks open in the central joint plane in the left direction.

Krude does not expressly disclose ratios V1, V2, V3 & V4 and maximum angle of articulation having values within the ranges recited in the instant claims. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the values of these ratios and maximum angle of articulation substantially within the ranges recited in the instant claims for the same reason noted immediately above.

8. Claims 1, 21-47 & 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sahashi et al, US 2001/0004611 (Sahashi) in view of Krude. Fig. 2 of Sahashi shows a drive

shaft comprising: two constant velocity joints 2, 14; an intermediate shaft 1; a differential drive and a wheel hub unit 4. Fig. 2 shows that one of the constant velocity, joint 2 is an axial plunging unit. Fig. 7 shows the other constant velocity joint, joint 14 comprising inner and outer joint parts and eight torque transmitting balls, each in a pair of ball tracks, but does expressly disclose the joint comprising all the other limitations of instant claims 1 & 21-27.

As noted in item 7 above, Krude discloses a constant joint which would comprise all the limitations of instant claims 1 & 21-27 and teaches in paragraph 0004 making a joint in this manner in order to provide a joint that provides design freedom and advantageous assembly conditions. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the driveshaft of Sahashi by making the joint 14 in manner similar to that of Krude in order to provide a joint that provides design freedom and advantageous assembly conditions as taught by Krude.

9. Claims 1, 21-29, 38-41 & 46-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cermak et al, US 6,379,255 (Cermak) in view of Krude. Cermak shows a drive shaft comprising two constant velocity joints 8, 21 connected by three intermediate shafts 6, 9, 19, but does not expressly one of the joints comprising all the limitations of instant claims 1 & 21-27. However, making the driveshaft with such a joint would have been obvious for the same reason noted immediately above.

*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aucktor, US 4,177,654 and Welshof et al, US 2003/0008717 each show driveshafts.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Binda whose telephone number is (571) 272-7077. The examiner can normally be reached on M-F 10:30 am to 8:00 pm with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571) 272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Greg Binda/  
Primary Examiner, Art Unit 3679